



# Condition Monitoring Strategy Review

<p><b>Project</b> Condition Monitoring Strategy Review</p>
<p><b>Client</b> Queensland Rail, South East Queensland (SEQ)</p>
<p><b>Location</b> Brisbane, Australia</p>
<p><b>Dates &amp; Duration</b> 2022 – 2022 (3 Months)</p>
<p><b>Services Provided</b></p> <ul style="list-style-type: none"> <li>▶ Asset Management and Maintenance</li> </ul>

## Background

Queensland Rail is introducing the Condition Improvement Program, a new risk-based asset planning framework that provides a consistent and data-driven approach to asset management and investment decision making.

A key initiative within this program is instrument-based asset condition capture, to support a range of benefits including:

- ▶ Understanding asset condition whilst minimising the requirement for maintenance staff to enter the danger zone/rail corridor;
- ▶ Improved asset management practices including enhanced asset availability and reliability;
- ▶ Supporting data driven decisions on maintenance and renewal/replacement investments; and
- ▶ Detection of critical failures to maintain safety and on-time running targets.

## Scope of Works

The key objectives of the review are as follows:

- ▶ Review the existing Condition Monitoring systems within South East Queensland (SEQ) and current high-level strategy for further investment in Condition Monitoring;
- ▶ Benchmark the maturity of SEQ’s existing Condition Monitoring systems with other railways;
- ▶ Document the recommended future state of Condition Monitoring systems within SEQ, including the prioritised implementation of new/expanded Condition Monitoring systems based on proven technology already in use within the rail industry;

- ▶ Produce high-level cost and time estimates to implement the recommended future state and identify how the expected benefits are to be realised from each initiative; and
- ▶ Identify supporting changes to Queensland Rail processes and practices that are required to realise the full benefits of the future state implementation. This includes efforts to implement and maintain any related data analytics to enhance system benefits.

### Key Project Outputs

The review provided benchmarking and the Condition Monitoring (CM) Maturity of the SEQ network's existing monitoring systems, through comparison to other railways and ISO 13374 respectively with key focus on the technical and functional capability of the CM system.

Key areas of the review included:

#### Benefits Management

Provided guidance and recommendations on the level of the performance review of CM system, assessing how these are presented to management and aligned with the aims set out in the business case to support implementation.

#### Recommended Future State

- ▶ Based on workshop findings and our proposed Quad of Aim, taking account of the target CM maturity, Network Rail Consulting (NRC) provided an outline of Condition Monitoring issues common to all assets and operational technology;
- ▶ For each asset discipline, a range of CM initiatives was proposed, together with a high-level benefits analysis of each with a priority for implementation; and
- ▶ For each asset discipline, recommendations for which initiatives should be implemented together with timescales and extent.

#### Building a Condition Monitoring Strategy

Provided guidance and recommendations on the approach to building the business case and cost benefits for the development of a CM strategy.

#### High Level Costs and Benefits

Produced high-level cost estimates and known benefits for consideration to implement the recommended future CM strategy, with costs developed from first principles.

#### Common Recommendations

The review provided an extensive list of initiatives and recommendations at each discipline specific level.